In the Claims:

1. (CURRENTLY AMENDED) A multimode wavelength division multiplexing (WDM) network transceiver system comprising:

a plurality of optical single channel transceivers each operative at a first wavelength band and receiving optical communications signals;

a plurality of optical transmitters operatively connected and matched to respective single channel transceivers ~~that receive~~ and receiving signals electrically processed at ~~a transceiver~~ each respective single channel transceiver ~~of a first~~ at the first wavelength band and transmit optical communications signals along respective signal paths at a second wavelength band;

a wavelength division multiplexer operatively connected to each optical transmitter for receiving the optical communications signals at the second wavelength band and wavelength division multiplexing the optical communications signals within the second wavelength band into a multimode wavelength division multiplexed optical communications signal having a wavelength channel spacing less than about 1,000 gigahertz;

a demultiplexer for receiving ~~the multimode~~ a multimode wavelength division multiplexed optical communications signal within the second wavelength band from another multimode wavelength division multiplexing (WDM) network transceiver system and demultiplexing the signal into a plurality of demultiplexed optical communications signals; and

a plurality of optical receivers each connected to the

~~multiplexer~~ demultiplexer and matched ~~with each~~ with a respective ~~optical transmitter~~ single channel transceiver for receiving and detecting the demultiplexed optical communications signal and ~~generating a signal~~ passing to a respective single channel transceiver ~~to be output as an optical~~ the optical communications signal ~~contained within the~~ at the first wavelength band.

2. (CURRENTLY AMENDED) A network transceiver system according to Claim 1, wherein ~~said~~ each optical receiver comprises a PIN detector.

3. (CURRENTLY AMENDED) A network transceiver system according to Claim 2, wherein said PIN detector comprises an InGaAS PIN detector.

4. (CURRENTLY AMENDED) A network transceiver system according to Claim 2, wherein ~~said~~ each optical receiver further comprises a transimpedance amplifier.

5. (CURRENTLY AMENDED) A network transceiver system according to Claim 1, wherein ~~said~~ each optical receiver comprises an Avalanche Photo Diode (APD).

6. (CURRENTLY AMENDED) A network transceiver system according to ~~Claim 4~~ Claim 5, wherein ~~said APD~~ each optical receiver comprises an InGaAS APD detector.

7. (CURRENTLY AMENDED) A network transceiver system according to Claim 1, wherein ~~said~~ each optical transmitter comprises a distributed feedback laser.

8. (CURRENTLY AMENDED) A network transceiver system according to Claim 7, wherein ~~said~~ each optical transmitter comprises a thermoelectric cooler and controller circuit.

9. (CURRENTLY AMENDED) A network transceiver system according to Claim 1, and further comprising an attenuator positioned within a transmit signal channel between each optical transmitter and said multiplexer.

10. (CURRENTLY AMENDED) A network transceiver system according to Claim 9, and further comprising a single mode optical fiber defining a signal channel between said attenuator and said optical transmitter and an optical fiber defining signal channel between said attenuator and said multiplexer.

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12. (CURRENTLY AMENDED) A network transceiver system according to ~~Claim 11~~ Claim 1, wherein said second wavelength band is upconverted from said first wavelength band.

13. (CURRENTLY AMENDED) A network transceiver system according to Claim 1, and further comprising a physical sublayer chip circuit operatively connected to a plurality of optical transmitters and matched optical receivers.

14. (CURRENTLY AMENDED) A network transceiver system according to Claim 13, and further comprising an electrical interface operatively connected to said physical sublayer chip circuit.

15. (CURRENTLY AMENDED) A network transceiver system according to Claim 14, wherein said electrical interface comprises a plurality of RJ-45 jacks for Ethernet 1000 Base-T connection.

16. (CURRENTLY AMENDED) A network transceiver system according to Claim 1, and further comprising a serial/deserializer (SERDES) circuit operatively connected to an optical transmitter and matched optical receiver, a switch circuit operatively connected to said serial/deserializer circuit, and a physical sublayer chip circuit and electrical interface operatively connected to said switch circuit.

17. (CURRENTLY AMENDED) A network transceiver system for processing optical communications signals into a wavelength division multiplexed optical communications signal comprising:

a plurality of optical single channel transceivers ~~for receiving and transmitting optical communications signals contained~~ each operative at a first wavelength band ~~and~~

~~processing~~ for processing the optical communications signals as electrical signals;

~~an optical~~ a plurality of optical transmitters each operatively matched and connected to ~~each transceiver~~ a respective single channel transceiver for receiving the electrical signals from ~~the transceiver~~ a respective single channel transceiver and transmitting an optical communications signal at a second wavelength band;

a wavelength division multiplexer operatively connected ~~to the~~ to each optical ~~transmitters~~ transmitter for wavelength division multiplexing the optical communications signals within the second wavelength band into a multimode wavelength division multiplexed optical communications signal and onto a multimode fiber output;

a demultiplexer for receiving another multimode wavelength division multiplexed optical communications signal ~~signals~~ within the second wavelength band from another multimode wavelength division multiplexed (WDM) network transceiver system and demultiplexing the optical communications signals into a plurality of demultiplexed optical communications signals; and

~~an optical~~ a plurality of optical receivers each operatively connected to the demultiplexer and each to a respective matched single channel transceiver for receiving and detecting a demultiplexed optical communications signal and ~~generating~~ passing a signal to a respective single channel transceiver to be output as an optical communications signal contained ~~within the~~ within a first wavelength band.

18. (CURRENTLY AMENDED) A network transceiver system according to Claim 17, wherein said optical receiver comprises a PIN detector.

19. (CURRENTLY AMENDED) A network transceiver system according to Claim 18, wherein said PIN detector comprises an InGaAS PIN detector.

20. (CURRENTLY AMENDED) A network transceiver system according to Claim 18, wherein said optical receiver further comprises a transimpedance amplifier.

21. (CURRENTLY AMENDED) A network transceiver system according to Claim 17, wherein said optical receiver comprises an Avalanche Photo Diode (APD).

22. (CURRENTLY AMENDED) A network transceiver system according to Claim 21, wherein said APD comprises an InGaAS APD detector.

23. (CURRENTLY AMENDED) A network transceiver system according to Claim 17, wherein said optical transmitter comprises a distributed feedback laser.

24. (CURRENTLY AMENDED) A network transceiver system according to Claim 17, wherein said optical transmitter comprises a thermoelectric cooler and controller circuit.

25. (CURRENTLY AMENDED) An network transceiver system according to Claim 17, wherein ~~each~~ an optical transmitter is

operative for transmitting the optical communications signal contained within a second wavelength band onto a single mode fiber output.

26. (CURRENTLY AMENDED) A network transceiver system according to Claim 17, and further comprising a single mode optical fiber defining a signal channel between ~~said attenuator~~ an attenuator and said optical transmitter and an optical fiber defining a signal channel between ~~said attenuator~~ an attenuator and said wavelength division multiplexer.

27. (CURRENTLY AMENDED) A network transceiver system according to Claim 17, wherein said second wavelength band is upconverted from said first wavelength band.

28. (CURRENTLY AMENDED) A network transceiver system according to Claim 17, wherein a wavelength channel spacing is less than about 1,000 gigahertz.

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42. (CURRENTLY AMENDED) A method of expanding the bandwidth of an existing optical communications network comprising the steps of:

receiving optical communications signals within a first multimode wavelength division multiplexing (WDM) network transceiver system having a plurality of optical single channel transceivers operative at a first wavelength band and

processing the optical communications signals as electrical signals;

receiving the signals from the plurality of single channel transceivers in a plurality of optical transmitters which are matched with respective single channel transceivers and transmitting optical communications signals from ~~a plurality~~ the plurality of optical transmitters positioned along respective signal channels at a second wavelength band;

wavelength division multiplexing the optical communications signals into a multimode wavelength division multiplexed optical communications signal having a channel spacing less than about 1,000 gigzhertz and within the second wavelength band;

receiving the multimode wavelength division multiplexed optical communications signal within another multimode wavelength division multiplexing (WDM) network transceiver system;

demultiplexing the multimode wavelength division multiplexed optical communications signal within a demultiplexer at the second wavelength band into a plurality of optical communications signals along respective signal channels; and

receiving and detecting the plurality of optical communications signals within optical receivers that are respectively matched with optical ~~transmitters~~ single channel transceivers and ~~generating~~ passing a signal ~~to be output~~ as an optical communications signal ~~within the first wavelength band~~ to respective single channel transceivers operative at a second wavelength band, which output respective optical communications signals.

43. (ORIGINAL) A method according to Claim 42, wherein the step of detecting is within a PIN detector.

44. (ORIGINAL) A method according to Claim 43, wherein the PIN detector comprises an InGaAS detector.

45. (ORIGINAL) A method according to Claim 42, wherein the step of transmitting comprises the step of generating an optical communications signal with a distributed feedback laser.